

# TA-F120A/F220A

## SERVICE MANUAL

*AEP Model  
UK Model*

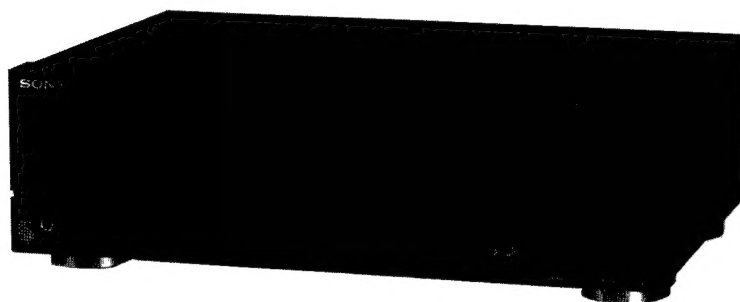


Photo: TA-F220A

### SPECIFICATIONS

#### Amplifier

Continuous RMS power output (both channels driven simultaneously)

|                             |        | TA-F120A  | TA-F220A  |
|-----------------------------|--------|-----------|-----------|
| DIN, 1 kHz                  | 4 ohms | 40W + 40W | 70W + 70W |
|                             | 8 ohms | 40W + 40W | 70W + 70W |
| 20 Hz – 20 kHz<br>THD 0.05% | 8 ohms | 30W + 30W | 50W + 50W |

#### Input

| Input jack                     | Jack type | Sensitivity | Impedance  | S/N (weighting network, input level) |
|--------------------------------|-----------|-------------|------------|--------------------------------------|
| PHONO (MM)                     | Phono     | 2.0 mV      | 50 kilohms | 70 dB (A, 2 mV)                      |
| TUNER, CD, VIDEO/AUX, TAPE/DAT | Phono     | 150 mV      | 50 kilohms | 100 dB (150 mV)                      |

#### Output

| Output jack | Jack type         | Voltage/impedance                           |
|-------------|-------------------|---|
| REC OUT     | Phono jacks       | Voltage 150 mV<br>Impedance 1 kohms         |
| SPEAKERS    | —                 | Accepts speakers of 4 – 6 ohms/8 – 16 ohms. |
| HEAD-PHONES | Stereo phone jack | Accepts low and high impedance headphones.  |

#### Tone controls

|        | Response       | Turnover frequency |
|--------|----------------|--------------------|
| BASS   | ±7 dB (100 Hz) | 500 Hz             |
| TREBLE | ±8 dB (15 kHz) | 3 kHz              |

Loudness (Attenuation 30 dB) (TA-F220A only)  
+6 dB (100 Hz)  
+3 dB (10 kHz)

— Continued on next page —



INTEGRATED STEREO AMPLIFIER  
**SONY®**

# TA-F120A/F220A

|   |  |
|---|--|
| Harmonic distortion                                 | Less than 0.05% at rated output  |
| Intermodulation (IM) distortion (60 Hz:7 kHz = 4:1) | Less than 0.05% at rated output  |
| Frequency response                                  | PHONO: RIAA equalization curve<br>±0.5 dB<br>TUNER, CD, VIDEO/AUX, TAPE1,<br>TAPE2/DAT: 7 Hz – 100 kHz ±3 dB |
| Residual noise                                      | Less than 170 µV (network A)   |
| Damping factor                                      | 40 (8 ohms, 1 kHz)   |

## General

|                    |  |
|--------------------|--|
| System             | Preamplifier: Low-noise, high-gain<br>equalizer amplifier<br>Power amplifier: Pure-complementary<br>SEPP OCL power amplifier with all<br>stages directly coupled                       |
| Power requirements | AEP model: 220 V AC, 50 Hz<br>UK model: 240 V AC, 50 Hz  |
| Power consumption  | AEP model:<br>TA-F120A: 95W<br>TA-F220A: 150W<br>UK model:<br>TA-F120A: 230W<br>TA-F220A: 380W   |
| Dimensions         | Approx. 430 × 135 × 315 mm (w/h/d)<br>(17 × 5 3/8 × 12 1/2 inches)   |
| Weight             | AEP model:<br>TA-F120A: Approx. 5.7 kg (12 lb 9 oz)<br>TA-F220A: Approx. 7.4 kg (16 lb 5 oz)<br>UK model:<br>TA-F120A: Approx. 5.6 kg (12 lb 6 oz)<br>TA-F220A: Approx. 6.8 kg (15 lb) |

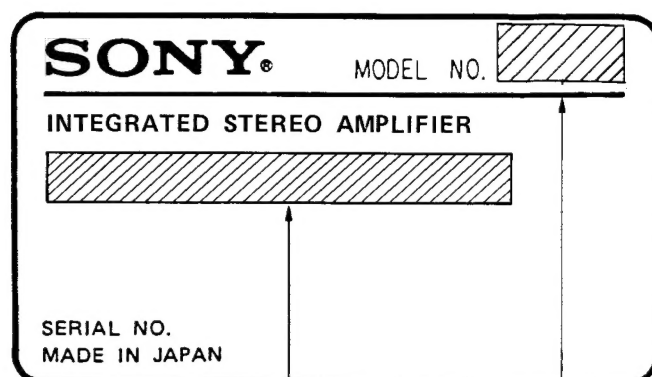
Design and specifications subject to change without notice.

## Note

This appliance conforms with EEC directive 87/308/EEC regarding interference suppression.

## MODEL IDENTIFICATION

— Specification Label —



TA-F120A  
TA-F220A

AEP Model: AC: 220 V ~ 50/60 Hz  
UK Model: AC: 240 V ~ 50/60 Hz

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## SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK OR DOTTED LINE WITH MARK ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

## 1-2. Connections

**TA-F220A : TAPE/DAT MONITOR**  
Cassette deck/DAT deck  
monitor switch

**TA-F220A : LOUDNESS**  
Loudness switch

**VOLUME**  
Volume control

**SOURCE DIRECT**  
Source switch and indicator

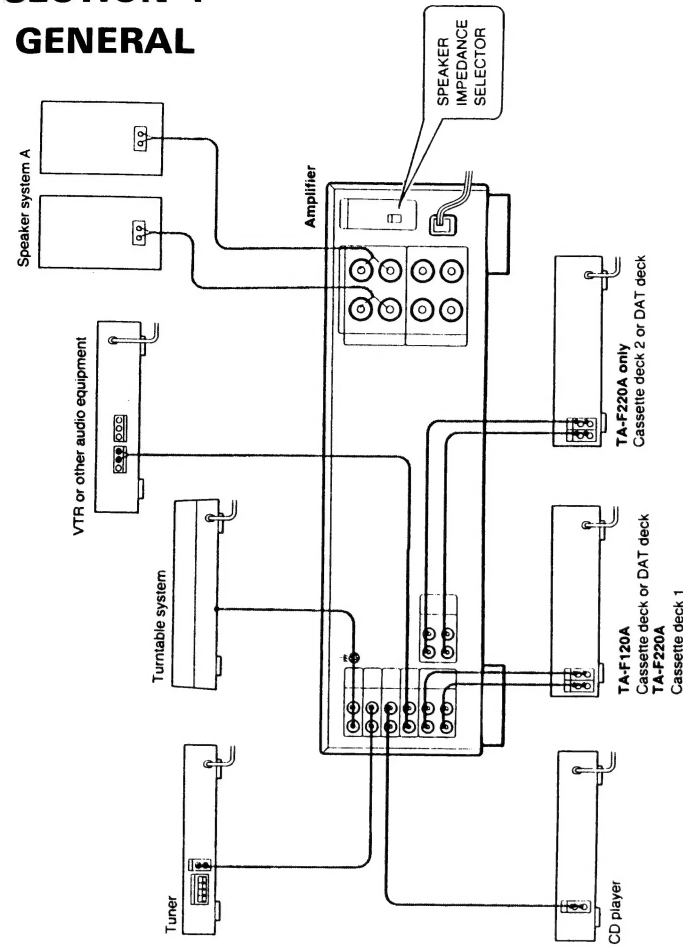
**BALANCE**  
Balance control

**TONE**  
Tone controls

**SPEAKERS**  
Speaker selector

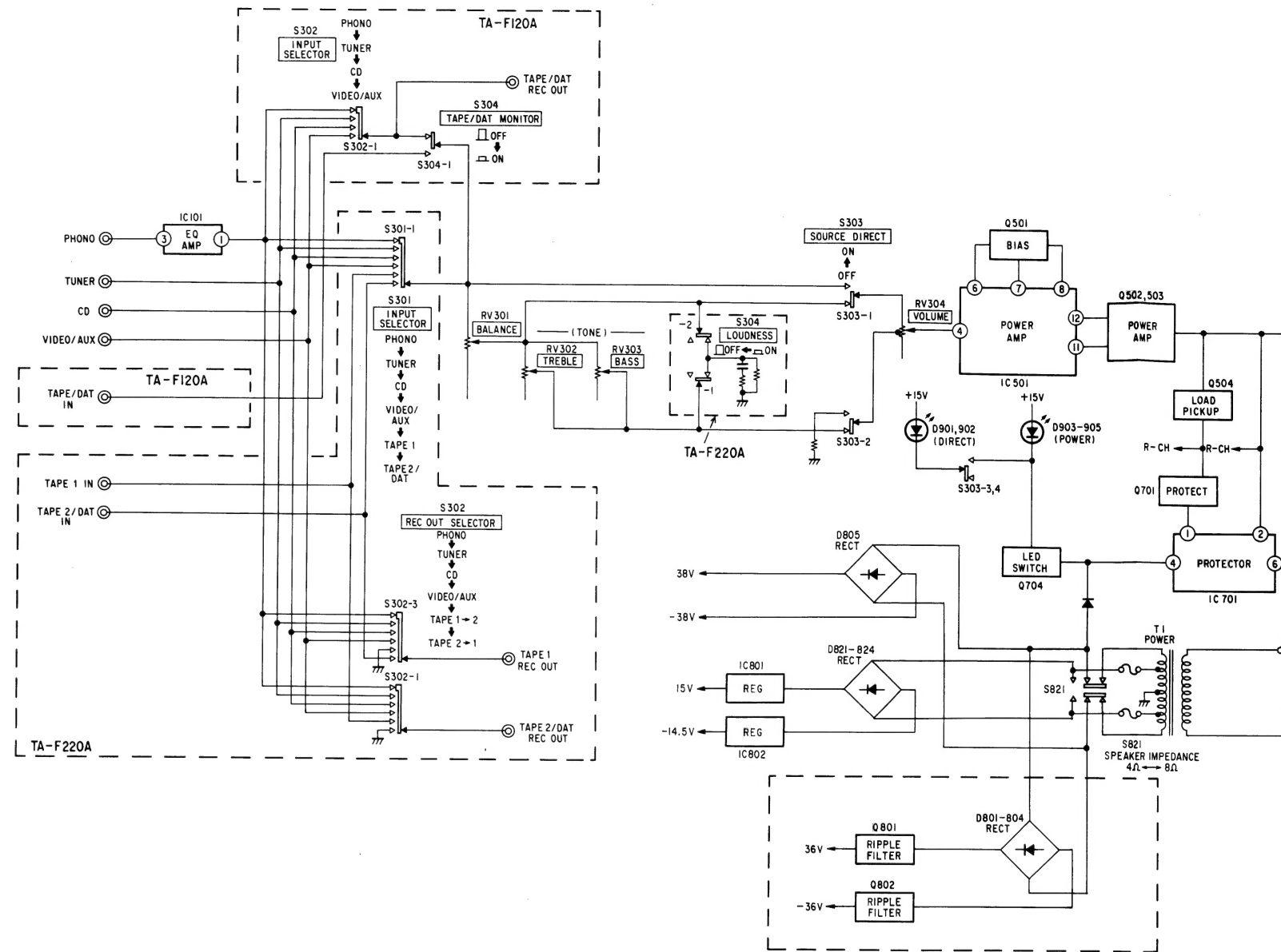
**POWER**  
Power switch and indicator

**HEADPHONES**  
Headphones jack



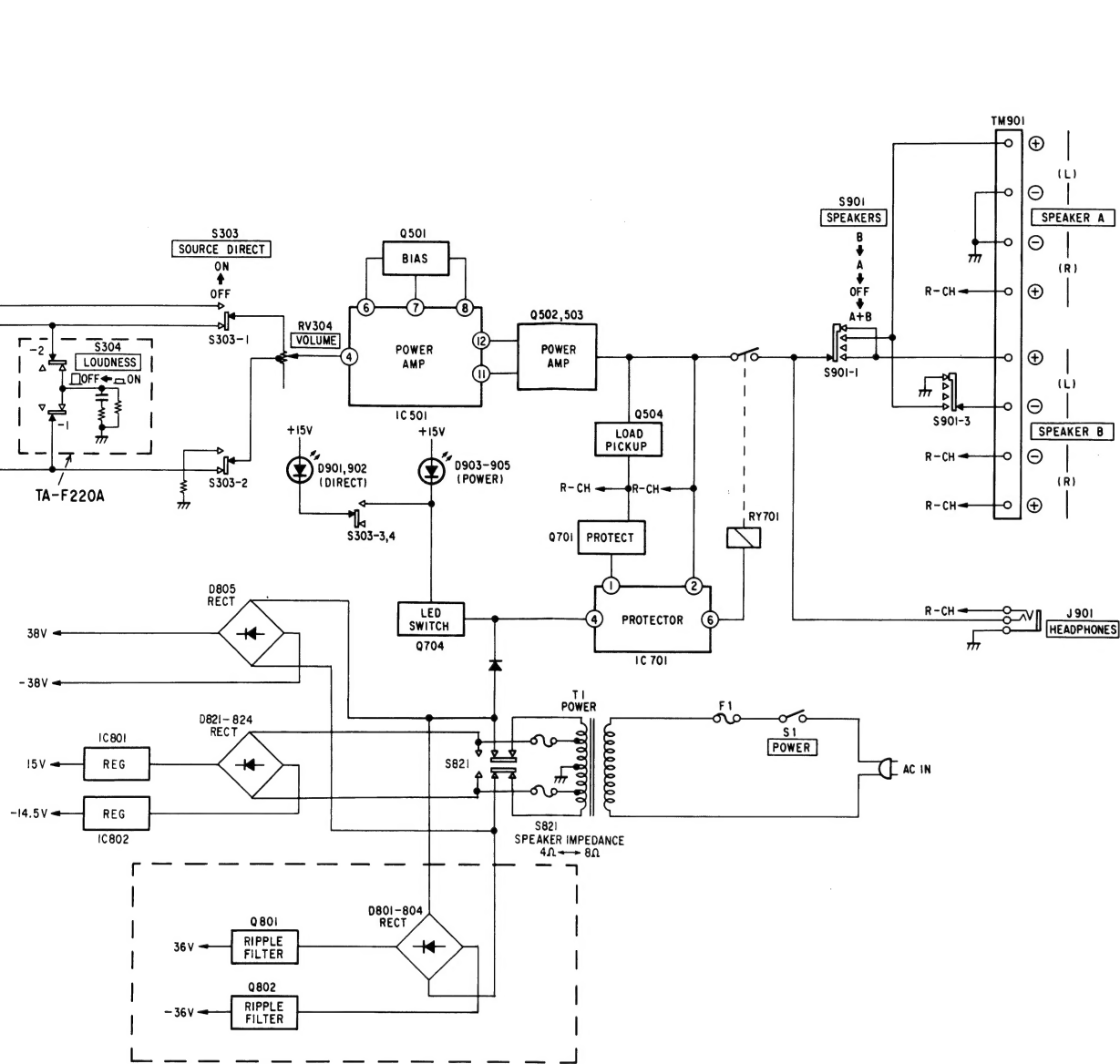
## Notes on Connection

- Connect the AC power cord last. Make sure power is off.
- Cord plugs and jacks are color coded. Red plugs and jacks are for right channel (R) and white ones for left channel (L).
- Fully insert cable connectors into jacks. Loose connections may cause hum or noise.



### SECTION 3 ELECTRICAL ADJUSTMENTS

### SECTION 4 DIAGRA

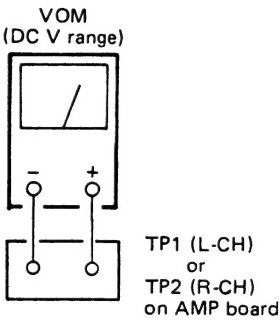


**NOTE:**

- Adjustment should be performed 10 minutes after the POWER switch is on (POWER ON).

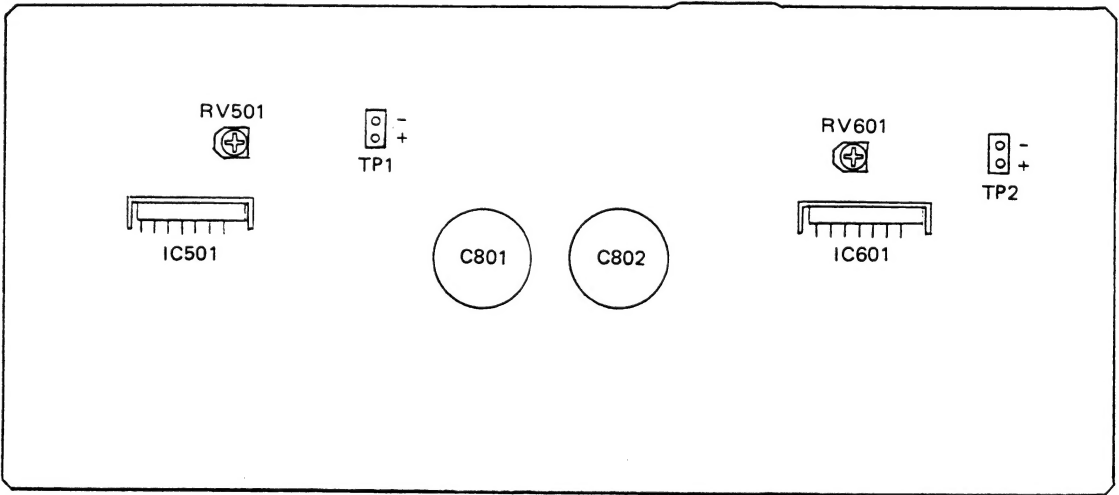
#### Bias Current Adjustment

**Setting:**  
VOLUME control: minimum

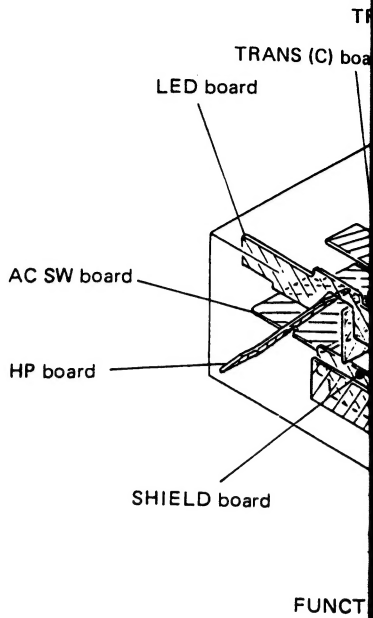


**Procedure:**  
Adjust RV501 (L-CH) and RV601 (R-CH) so as to obtain 4mV (TA-F120A) or 2mV (TA-F220A) at TP1 (L-CH) and TP2 (R-CH) respectively.

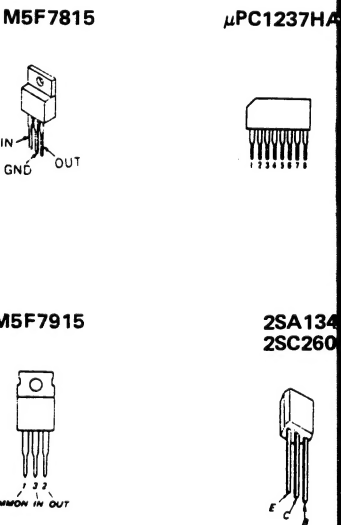
**Adjustment Location:**  
[AMP BOARD] — Component Side —



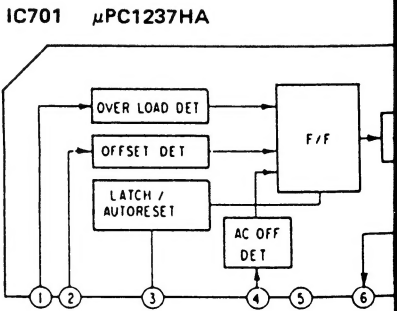
#### 4-1. CIRCUIT BOARDS LOCATI



#### 4-2. SEMICONDUCTOR LEAD LA



#### 4-3. IC BLOCK DIAGRAMS





## SECTION 3 ELECTRICAL ADJUSTMENTS

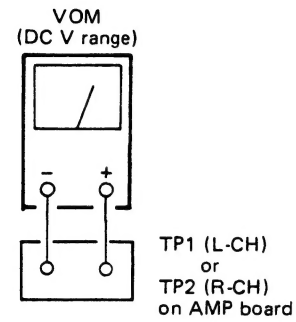
### NOTE:

- Adjustment should be performed 10 minutes after the POWER switch is on (POWER ON).

### Bias Current Adjustment

#### Setting:

VOLUME control: minimum

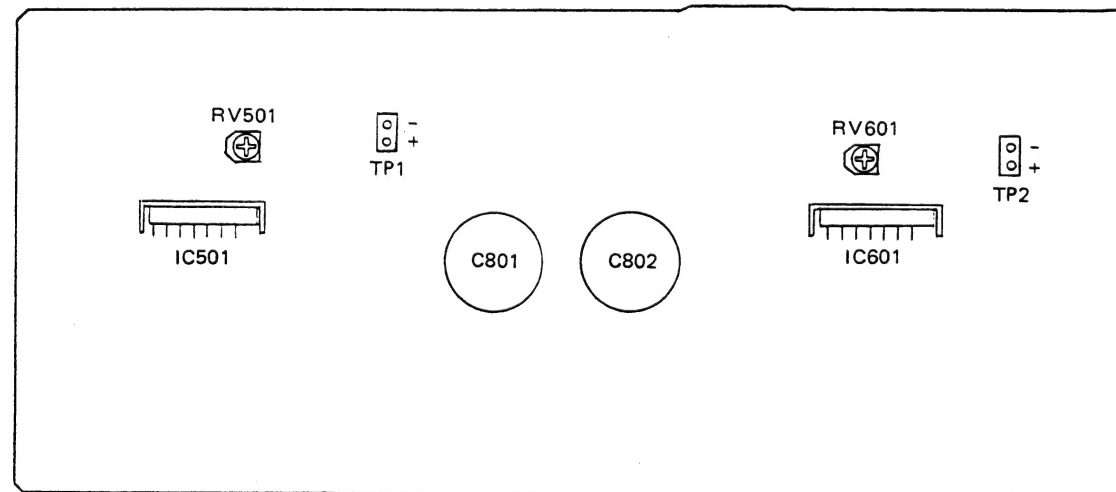


#### Procedure:

Adjust RV501 (L-CH) and RV601 (R-CH) so as to obtain 4mV (TA-F120A) or 2mV (TA-F220A) at TP1 (L-CH) and TP2 (R-CH) respectively.

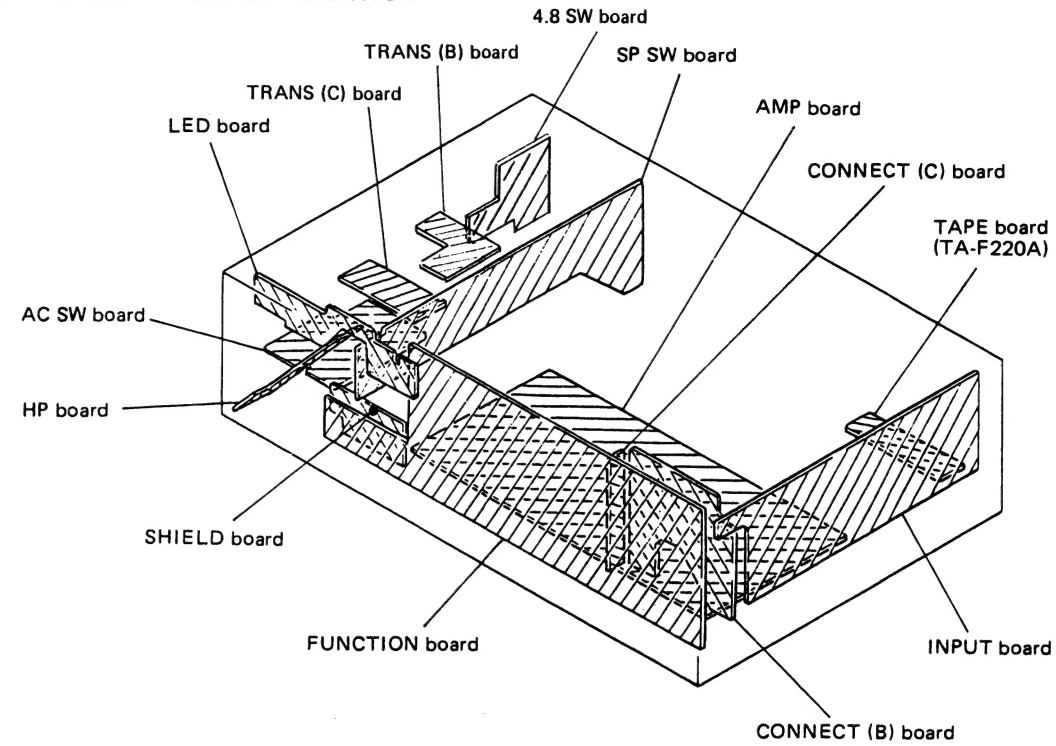
#### Adjustment Location:

[AMP BOARD] — Component Side —

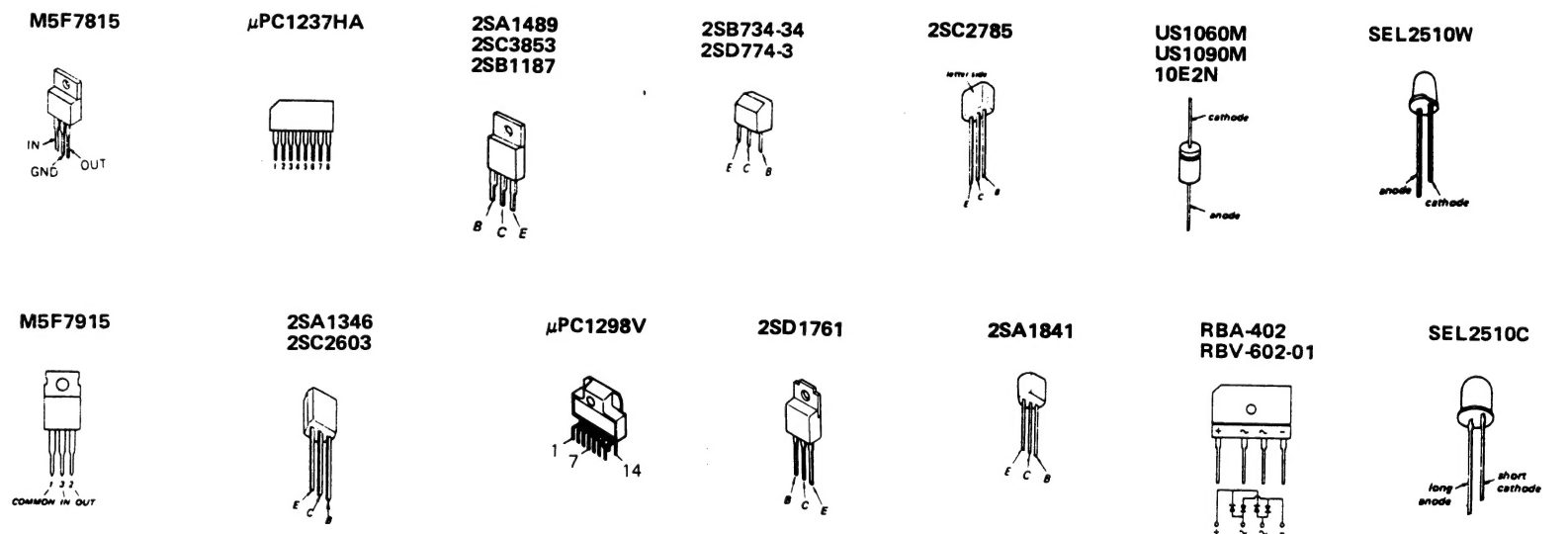


## SECTION 4 DIAGRAMS

### 4-1. CIRCUIT BOARDS LOCATION

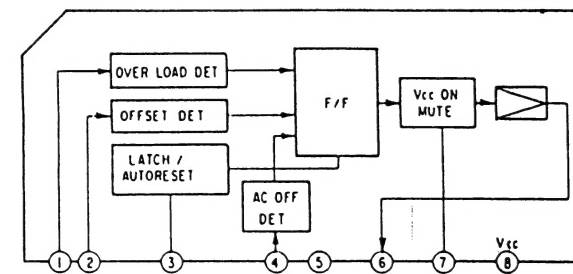


### 4-2. SEMICONDUCTOR LEAD LAYOUTS

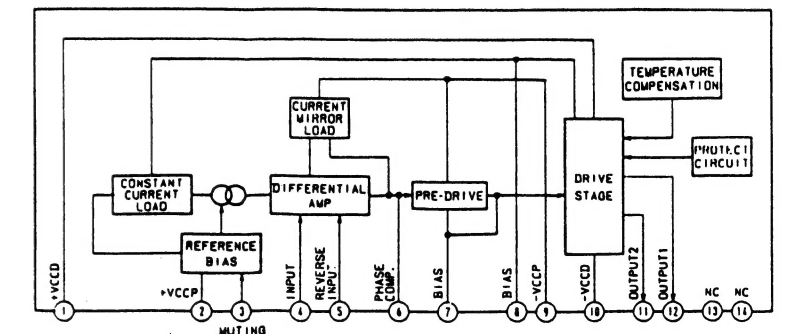


### 4-3. IC BLOCK DIAGRAMS

#### IC701 μPC1237HA



#### IC501, 601 μPC1298V

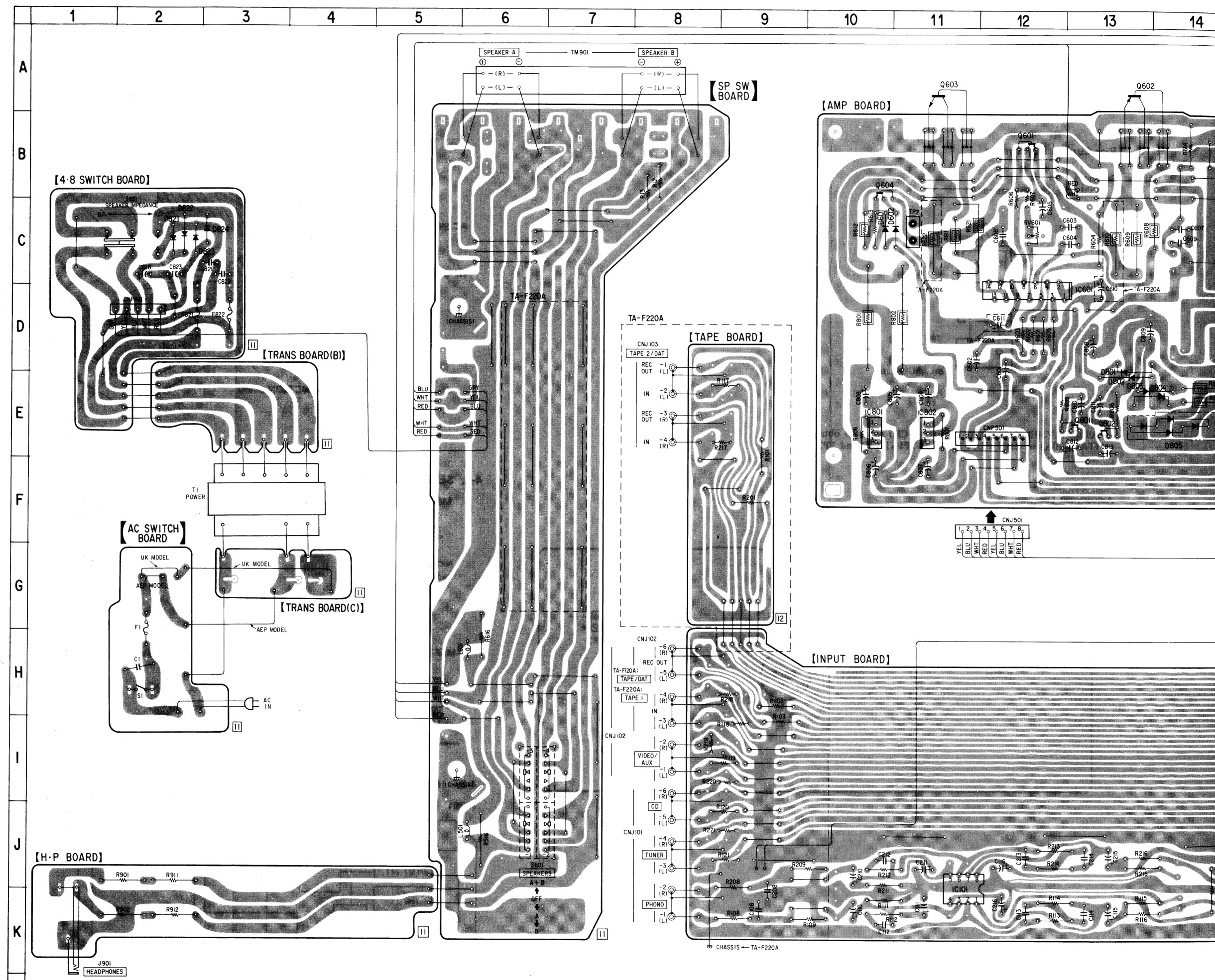


## • Semiconductor Location

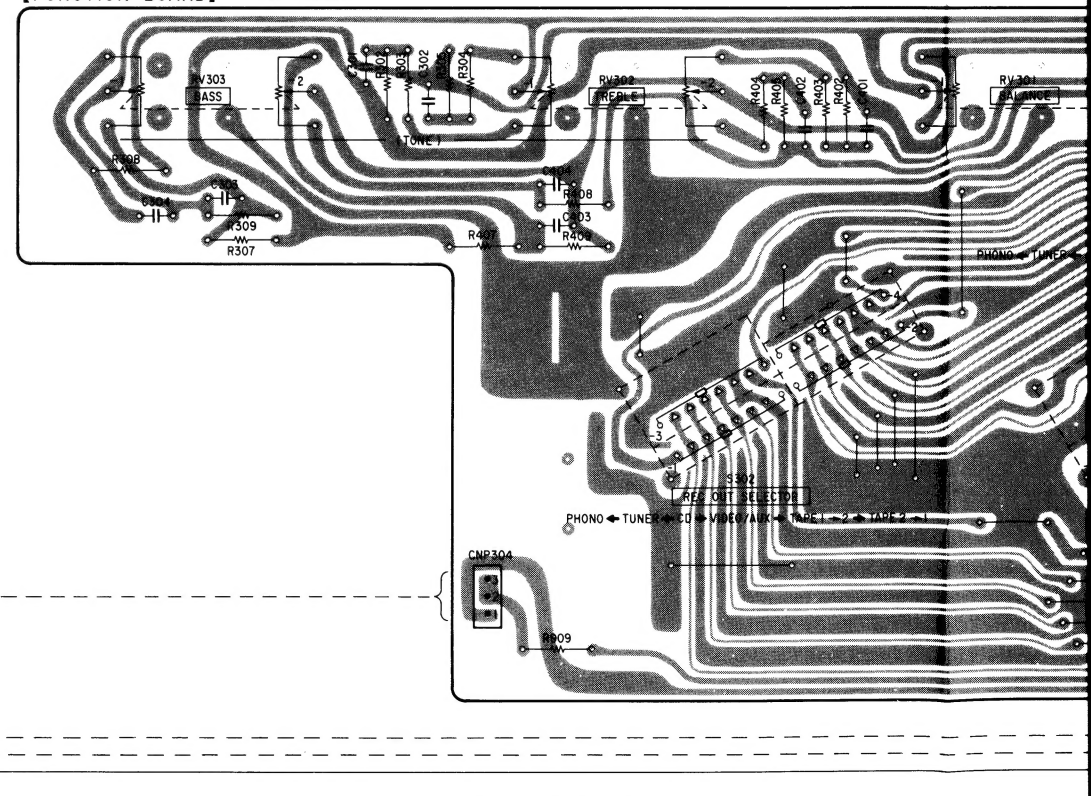
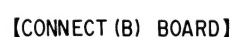
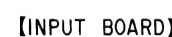
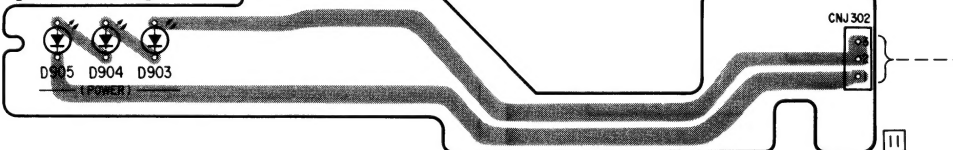
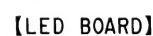
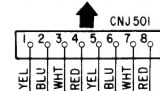
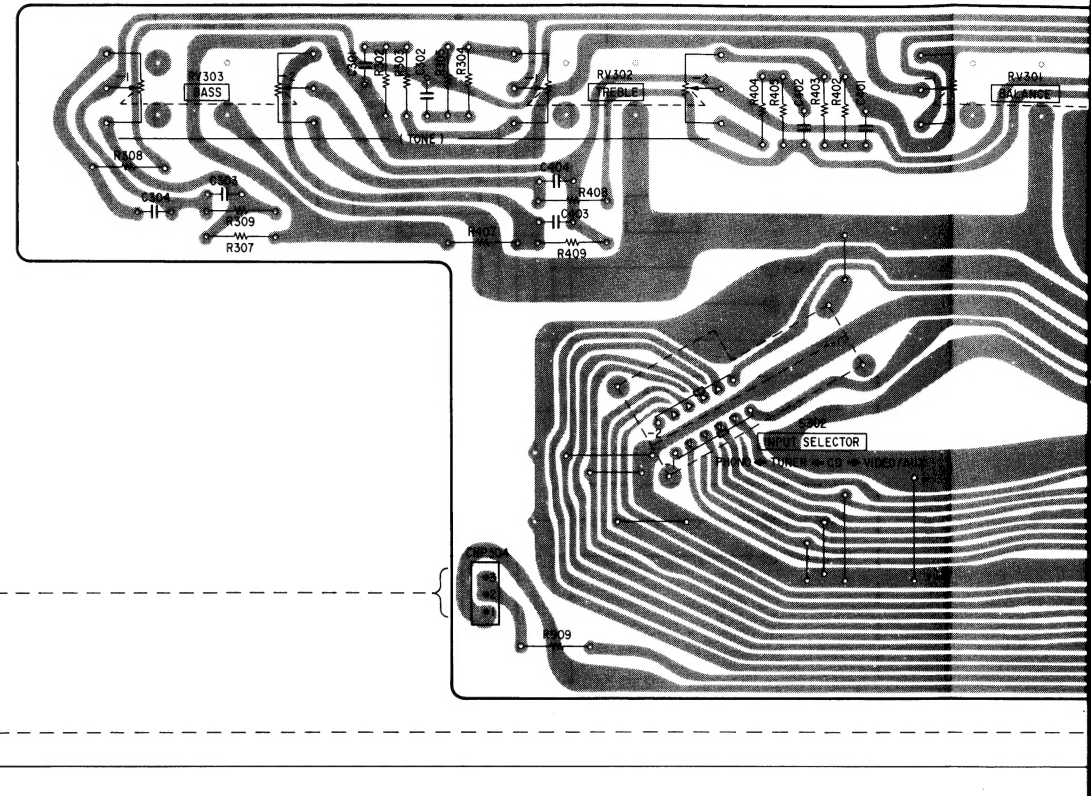
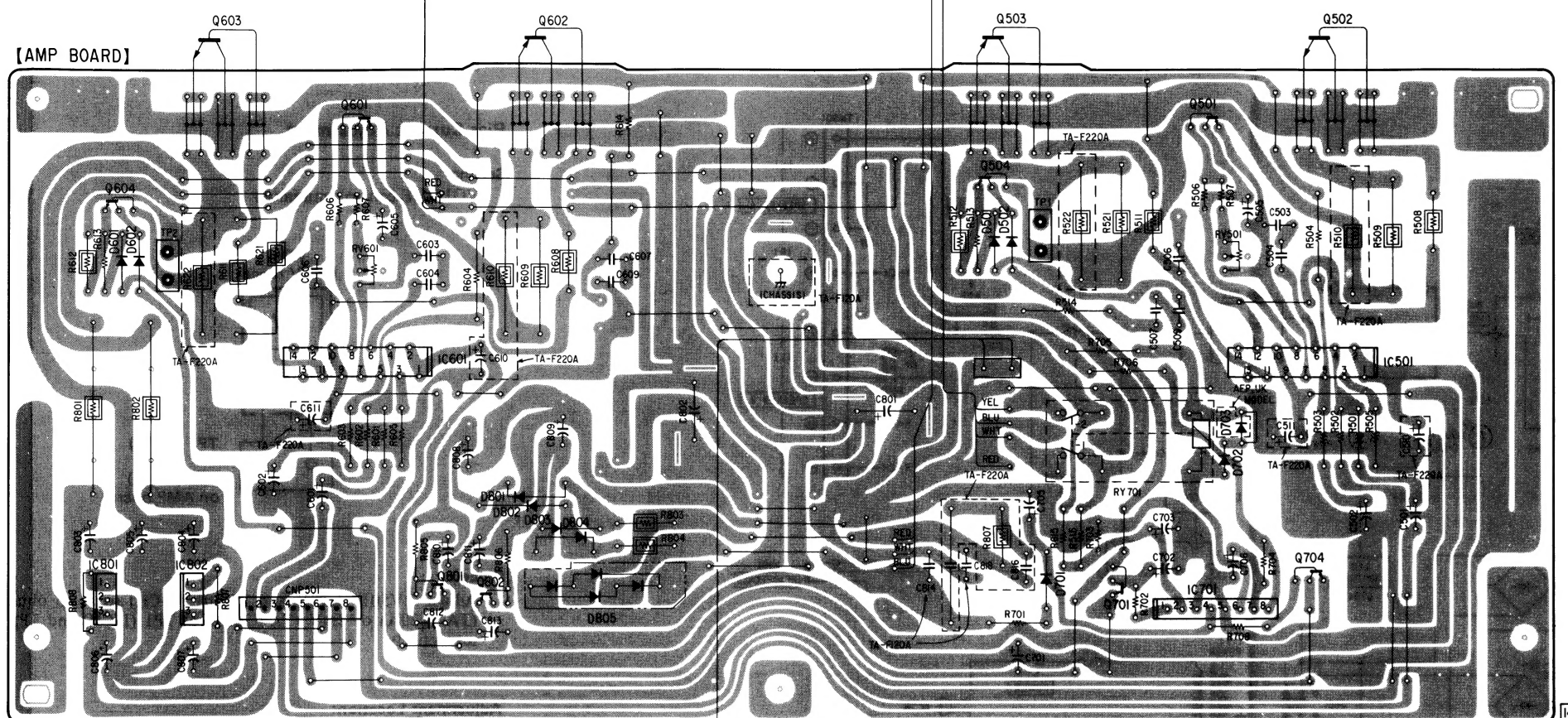
| Ref. No.     | Location | Ref. No. | Location |
|--------------|----------|----------|----------|
| D501         | C-16     | IC101    | K-11     |
| D502         | C-17     | IC501    | D-19     |
| D601         | C-10     | IC601    | D-12     |
| D602         | C-10     | IC701    | E-18     |
| D701         | E-17     | IC802    | E-10     |
| D702         | D-18     | IC802    | E-11     |
| D703         | D-18     |          |          |
| D801         | D-13     | Q501     | B-18     |
| D802         | E-13     | Q502     | A-19     |
| D803         | E-13     | Q503     | A-16     |
| D804         | E-13     | Q504     | B-16     |
| D805         | E-14     | Q601     | B-12     |
| D821         | C-2      | Q602     | A-13     |
| D822         | C-2      | Q603     | A-11     |
| D823         | C-2      | Q604     | B-10     |
| D824         | C-2      | Q701     | E-17     |
| D901 (F120A) | B-32     | Q704     | E-19     |
| D901 (F220A) | G-32     | Q801     | E-13     |
| D902 (F120A) | B-32     | Q802     | E-13     |
| D902 (F220A) | G-32     |          |          |
| D903         | G-16     |          |          |
| D904         | G-16     |          |          |
| D905         | G-16     |          |          |

## Note:

- ○ : parts extracted from the component side.



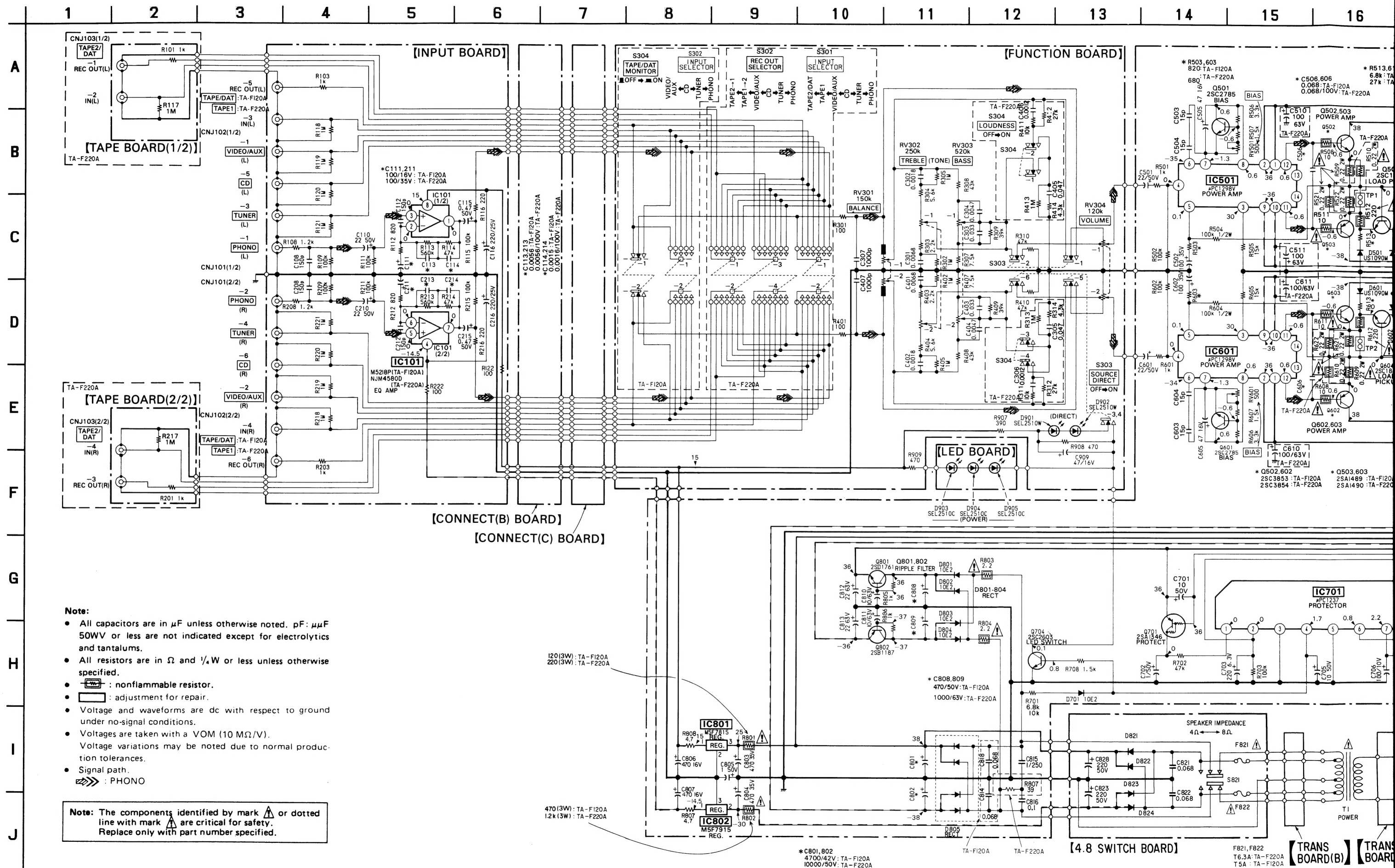


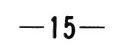














SECTION 5  
EXPLODED VIEWS

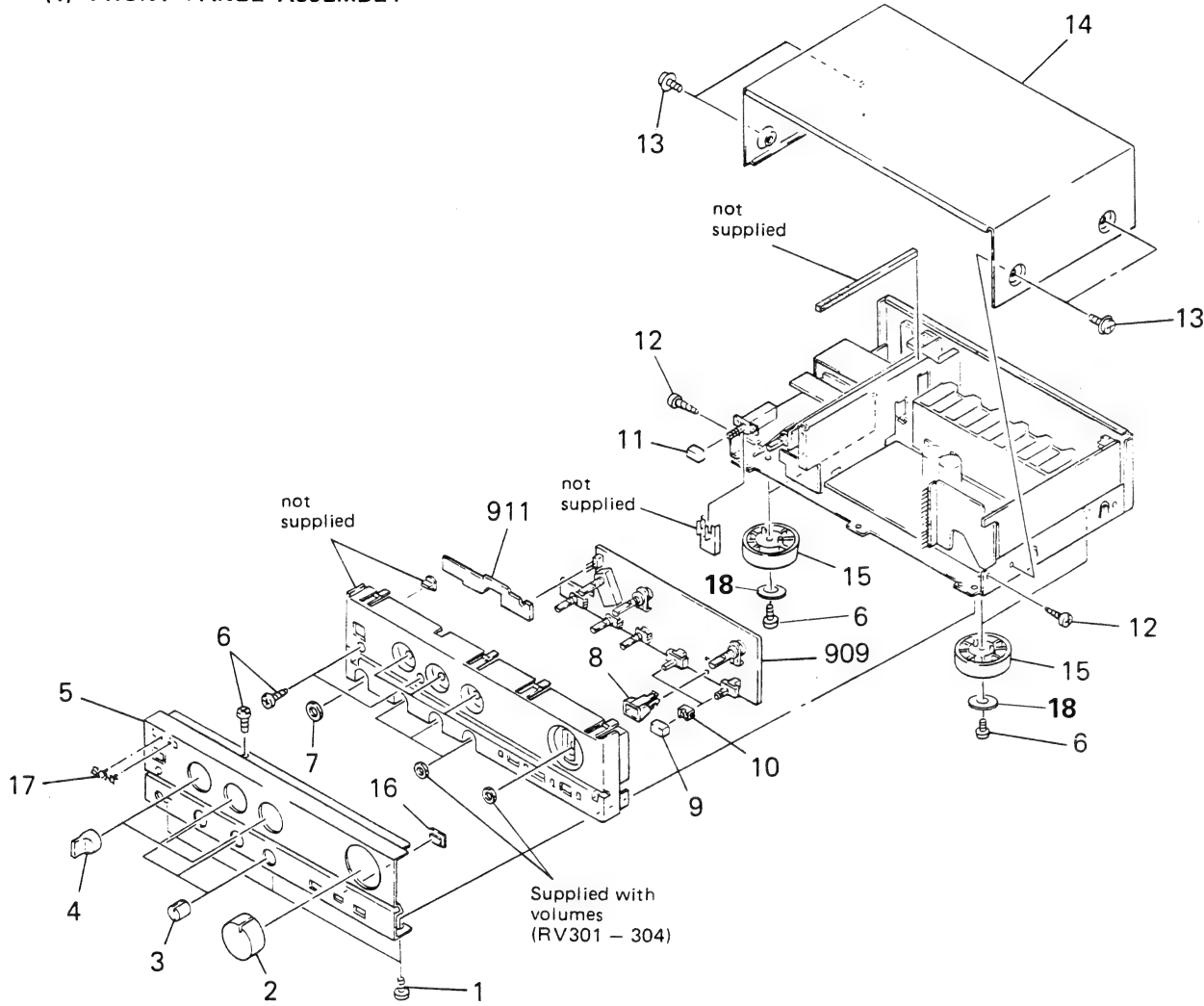
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts Example:  
(RED) ... KNOB, BALANCE (WHITE)  
↑ Cabinet's Color      ↑ Parts Color

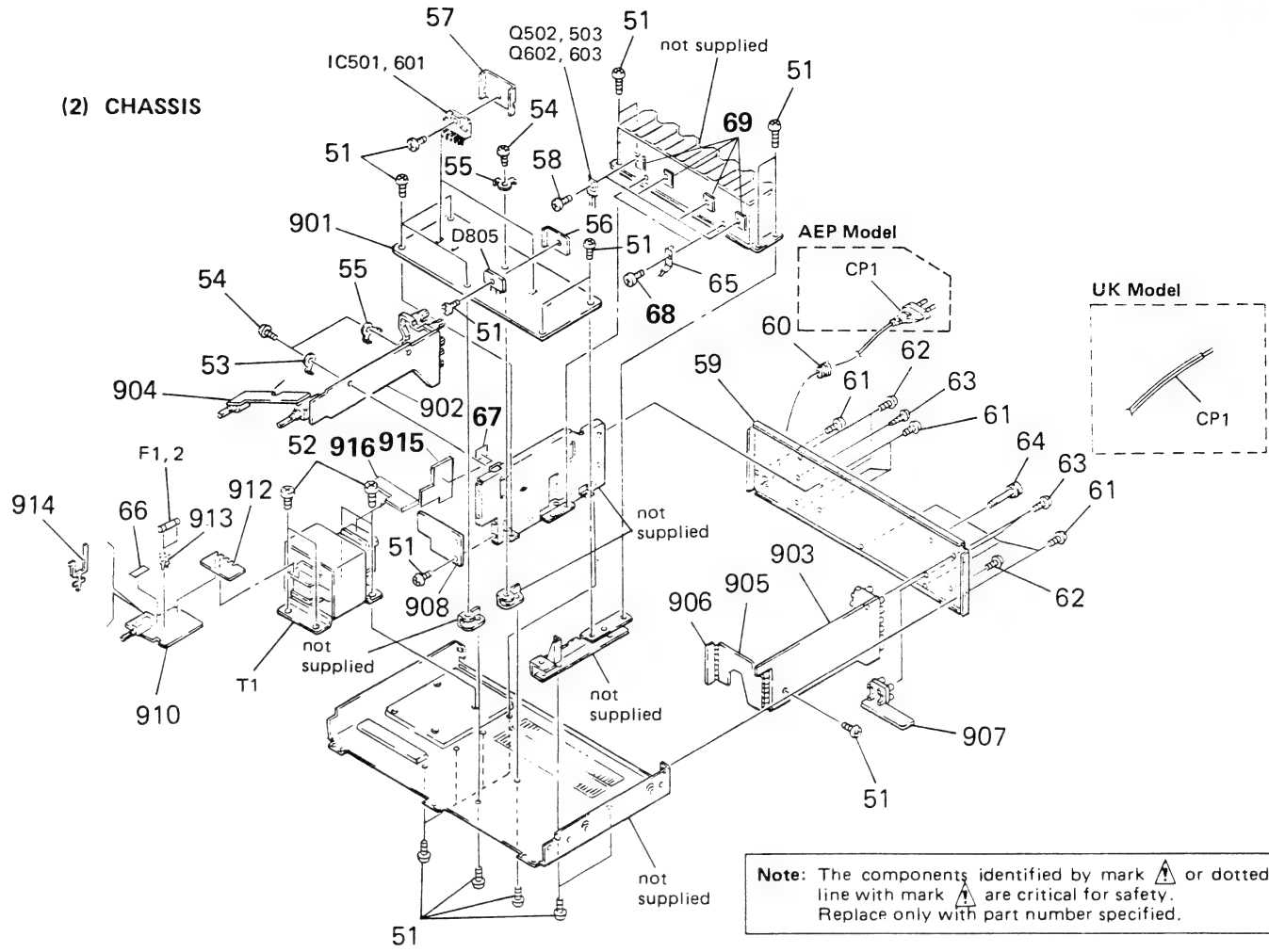
The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

(1) FRONT PANEL ASSEMBLY



| No. | Part No.                             | Description           | Remarks | No. | Part No.                                   | Description               | Remarks |
|-----|--------------------------------------|-----------------------|---------|-----|--|---------------------------|---------|
| 1   | 3-703-685-21                         | SCREW (+BV 3X8)       |         | 10  | 4-864-307-00                               | RING                      |         |
| 2   | 4-929-288-11 (F120A)...KNOB (VOL 47) |                       |         | 11  | 4-929-289-01                               | BUTTON                    |         |
|     | 4-929-299-01 (F220A)...KNOB (47)     |                       |         | 12  | 7-685-646-79                               | SCREW +BVTP 3X8 TYPE2 N-S |         |
| 3   | 4-916-746-11                         | KNOB (DIA. 21), ROUND |         | 13  | 3-704-366-01                               | SCREW (CASE) (M3X8)       |         |
| 4   | 4-916-729-01                         | KNOB (DIA.29)         |         | 14  | 4-929-294-11                               | CASE                      |         |
| 5   | 4-929-293-41 (F120A)...PANEL, FRONT  |                       |         | 15  | X-3304-938-2                               | FOOT ASSY                 |         |
|     | 4-929-293-12 (F220A)...PANEL, FRONT  |                       |         | 16  | 4-929-284-01                               | PLATE, INDICATION         |         |
| 6   | 7-682-548-04                         | SCREW +BVTT 3X8 (S)   |         | 17  | 4-908-848-01                               | EMBLEM, SONY              |         |
| 7   | 4-931-902-01                         | NUT (M12X1)           |         | 18  | 4-923-836-11                               | CUSHION                   |         |
| 8   | *4-921-389-01                        | HOUSE                 |         |     |  |                           |         |
| 9   | 4-908-875-01                         | KNOB, SQUARE          |         | 909 | *1-630-937-12 (F220A)...PC BOARD, FUNCTION |                           |         |
|     |                                      |                       |         |     | *1-630-941-13 (F120A)...PC BOARD, FUNCTION |                           |         |
|     |                                      |                       |         | 911 | *1-630-939-11 (F220A)...PC BOARD, LED      |                           |         |
|     |                                      |                       |         |     | *1-630-943-11 (F120A)...PC BOARD, LED      |                           |         |

(2) CHASSIS



| No. | Part No.                                       | Description               | Remarks | No.  | Part No.   | Description               | Remarks |
|-----|--|---------------------------|---------|------|--|---------------------------|---------|
| 51  | 7-682-548-04                                   | SCREW +BVTT 3X8 (S)       |         | 902  | *1-630-930-13                                    | PC BOARD, SP SW           |         |
| 52  | 7-682-560-04                                   | SCREW +BVTT 4X6 (S)       |         | 903  | *1-630-931-13                                    | PC BOARD, INPUT           |         |
| 53  | 4-870-539-00                                   | PLATE, GROUND             |         | 904  | *1-630-932-11                                    | PC BOARD, H.P             |         |
| 54  | 3-703-685-21                                   | SCREW (+BV 3X8)           |         | 905  | *1-630-933-11                                    | PC BOARD, CONECT (B)      |         |
| 55  | *3-346-266-12                                  | PLATE, GROUND             |         | 906  | *1-630-934-12                                    | PC BOARD, CONECT (C)      |         |
| 56  | *4-931-903-11                                  | (F220A)...HEAT SINK (DI)  |         | 908  | *1-630-936-12                                    | PC BOARD, SHIELD          |         |
| 57  | *4-931-998-01 (F120A)...HEAT SINK (S)          |                           |         | 910  | *1-634-636-11                                    | PC BOARD, AC SWITCH       |         |
|     | *4-931-998-11 (F220A)...HEAT SINK (S)          |                           |         | 912  | *1-634-635-11                                    | PC BOARD, TRANSFORMER (B) |         |
| 58  | 7-682-950-01                                   | SCREW +PSW 3X12           |         | 913  | *1-533-213-31                                    | HOLDER, FUSE              |         |
| 59  | *4-929-269-52 (F220A:AEP)...PANEL, BACK        |                           |         | 914  | *1-535-115-00                                    | TERMINAL                  |         |
|     | *4-929-269-72 (F220A:UK)...PANEL, BACK         |                           |         | 915  | *1-634-634-11                                    | PC BOARD, 4.8 SWITCH      |         |
|     | *4-931-974-11 (F120A:AEP)...PANEL, BACK        |                           |         | 916  | *1-634-637-11                                    | PC BOARD, TRANSFORMER (C) |         |
|     | *4-931-974-31 (F120A:UK)...PANEL, BACK         |                           |         | CP1  | *1-574-804-11 (UK)....CORD, POWER                |                           |         |
| 60  | *3-703-244-00                                  | BUSHING (2104), CORD      |         | CP1  | *1-574-805-11 (AEP)....CORD, POWER               |                           |         |
| 61  | 7-682-547-09                                   | SCREW +BVTT 3X6 (S)       |         | F1   | *1-532-285-00 (F120A)...FUSE, TIME-LAG T1.25A    |                           |         |
| 62  | 7-685-646-79                                   | SCREW +BVTP 3X8 TYPE2 N-S |         | F1   | *1-532-286-00 (F220A:AEP)...FUSE, TIME-LAG T2.5A |                           |         |
| 63  | 7-621-849-00                                   | SCREW, TAPPING            |         | F1   | *1-532-237-00 (F220A:UK)...FUSE, TIME-LAG T3.15A |                           |         |
| 64  | 3-706-165-00                                   | SCREW                     |         | F821 | *1-532-299-00 (F120A)...FUSE, TIME-LAG T5A       |                           |         |
| 65  | *4-929-285-01                                  | BRACKET (TR)              |         | F821 | *1-532-325-00 (F220A)...FUSE, TIME-LAG T6.3A     |                           |         |
| 66  | 3-701-947-12                                   | LABEL (T1.25A), FUSE      |         | F822 | *1-532-299-00 (F120A)...FUSE, TIME-LAG T5A       |                           |         |
| 67  | 3-701-947-18                                   | LABEL (T5A), FUSE         |         | F822 | *1-532-325-00 (F220A)...FUSE, TIME-LAG T6.3A     |                           |         |
| 68  | 7-682-546-01                                   | SCREW +B 3X5              |         | T1   | *1-450-060-11 (F220A)...TRANSFORMER, POWER       |                           |         |
| 69  | 4-911-232-01                                   | SHEET, INSULATING         |         | T1   | *1-450-061-11 (F120A)...TRANSFORMER, POWER       |                           |         |
| 901 | *A-4334-206-A (F120A)...MOUNTED PCB, AMPLIFIER |                           |         |      |  |                           |         |
|     | *A-4334-222-A (F220A)...MOUNTED PCB, AMPLIFIER |                           |         |      |  |                           |         |

NOTE:

- Due to list may the diag
- Items r
- are seld
- delay s
- items.
- If there
- such as
- circuit
- resistor

| Ref.No. | Part  |
|---------|-------|
| 901     | *A-43 |
|         | *A-43 |
| 902     | *1-63 |
| 903     | *1-63 |
| 904     | *1-63 |
| 905     | *1-63 |
| 906     | *1-63 |
| 908     | *1-63 |
| 909     | *1-63 |
|         | *1-63 |
| 910     | *1-63 |
| 911     | *1-63 |
|         | *1-63 |
| 912     | *1-63 |
| 913     | *1-53 |
| 914     | *1-53 |
| 915     | *1-63 |
| 916     | *1-63 |
| C1      | 1-16  |
| C108    | 1-16  |
| C110    | 1-12  |
| C111    | 1-12  |
| C111    | 1-12  |
| C112    | 1-16  |
| C113    | 1-13  |
| C114    | 1-13  |
| C114    | 1-13  |
| C115    | 1-12  |
| C116    | 1-12  |
| C208    | 1-16  |
| C210    | 1-12  |
| C211    | 1-12  |
| C211    | 1-12  |
| C212    | 1-16  |
| C213    | 1-13  |
| C213    | 1-13  |
| C214    | 1-13  |
| C214    | 1-13  |
| C215    | 1-12  |
| C216    | 1-12  |
| C301    | 1-13  |
| C302    | 1-13  |



Identified by  
mark  
V.  
rt number

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## SECTION 6 ELECTRICAL PARTS LIST

### NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:  
MF:  $\mu$ F, PF:  $\mu$ F.

### RESISTORS

- All resistors are in ohms.
- F: nonflammable

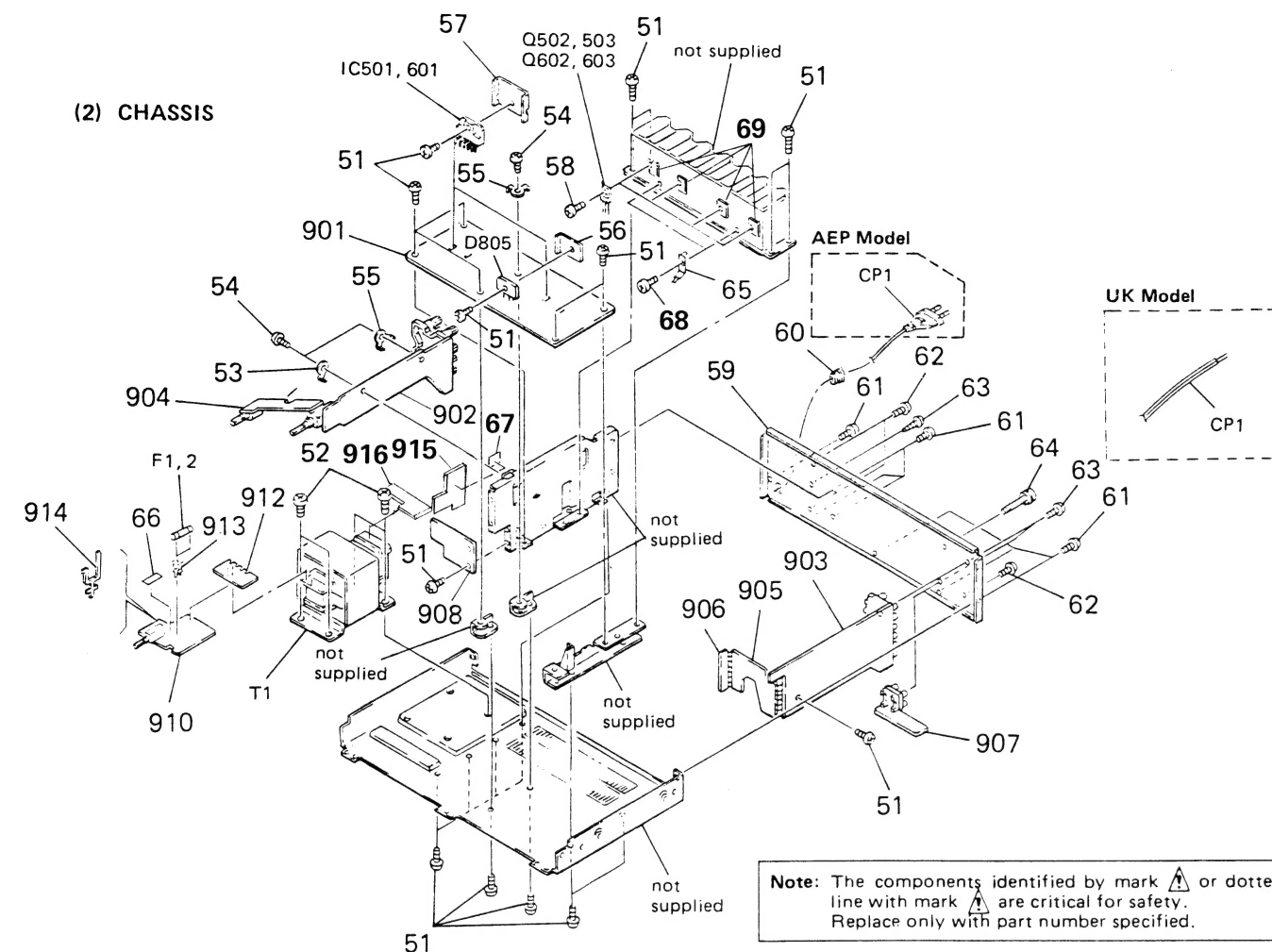
### COILS

- MMH: mH, UH:  $\mu$ H

### SEMICONDUCTORS

In each case, U:  $\mu$ , for example:  
UA...:  $\mu$ A..., UPA...:  $\mu$ PA...,  
UPC...:  $\mu$ PC, UPD...:  $\mu$ PD...

The components identified by  
mark  $\Delta$  or dotted line with mark  
 $\Delta$  are critical for safety.  
Replace only with part number  
specified.



| No. | Part No.      | Description                      | Remarks |
|-----|---------------|----------------------------------|---------|
| 51  | 7-682-548-04  | SCREW +BVTT 3X8 (S)              |         |
| 52  | 7-682-560-04  | SCREW +BVTT 4X6 (S)              |         |
| 53  | 4-870-539-00  | PLATE, GROUND                    |         |
| 54  | 3-703-685-21  | SCREW (+BV 3X8)                  |         |
| 55  | *3-346-266-12 | PLATE, GROUND                    |         |
| 56  | *4-931-903-11 | (F220A)...HEAT SINK (DI)         |         |
| 57  | *4-931-998-01 | (F120A)...HEAT SINK (S)          |         |
|     | *4-931-998-11 | (F220A)...HEAT SINK (S)          |         |
| 58  | 7-682-950-01  | SCREW +PSW 3X12                  |         |
| 59  | *4-929-269-52 | (F220A:AEP)...PANEL, BACK        |         |
|     | *4-929-269-72 | (F220A:UK)...PANEL, BACK         |         |
|     | *4-931-974-11 | (F120A:AEP)...PANEL, BACK        |         |
|     | *4-931-974-31 | (F120A:UK)...PANEL, BACK         |         |
| 60  | *3-703-244-00 | BUSHING (2104), CORD             |         |
| 61  | 7-682-547-09  | SCREW +BVTT 3X6 (S)              |         |
| 62  | 7-685-646-79  | SCREW +BVTP 3X8 TYPE2 N-S        |         |
| 63  | 7-621-849-00  | SCREW, TAPPING                   |         |
| 64  | 3-706-165-00  | SCREW                            |         |
| 65  | *4-929-285-01 | BRACKET (TR)                     |         |
| 66  | 3-701-947-12  | LABEL (T1.25A), FUSE             |         |
| 67  | 3-701-947-18  | LABEL (T5A), FUSE                |         |
| 68  | 7-682-546-01  | SCREW +B 3X5                     |         |
| 69  | 4-911-232-01  | SHEET, INSULATING                |         |
| 901 | *A-4334-206-A | (F120A)...MOUNTED PCB, AMPLIFIER |         |
|     | *A-4334-222-A | (F220A)...MOUNTED PCB, AMPLIFIER |         |

| No.  | Part No.      | Description                        | Remarks |
|------|---------------|------------------------------------|---------|
| 902  | *1-630-930-13 | PC BOARD, SP SW                    |         |
| 903  | *1-630-931-13 | PC BOARD, INPUT                    |         |
| 904  | *1-630-932-11 | PC BOARD, H.P                      |         |
| 905  | *1-630-933-11 | PC BOARD, CONECT (B)               |         |
| 906  | *1-630-934-12 | PC BOARD, CONECT (C)               |         |
| 908  | *1-630-936-12 | PC BOARD, SHIELD                   |         |
| 910  | *1-634-636-11 | PC BOARD, AC SWITCH                |         |
| 912  | *1-634-635-11 | PC BOARD, TRANSFORMER (B)          |         |
| 913  | *1-533-213-31 | HOLDER, FUSE                       |         |
| 914  | *1-535-115-00 | TERMINAL                           |         |
| 915  | *1-634-634-11 | PC BOARD, 4.8 SWITCH               |         |
| 916  | *1-634-637-11 | PC BOARD, TRANSFORMER (C)          |         |
| CP1  | *1-574-804-11 | (UK)...CORD, POWER                 |         |
| CP1  | *1-574-805-11 | (AEP)...CORD, POWER                |         |
| F1   | *1-532-285-00 | (F120A)...FUSE, TIME-LAG T1.25A    |         |
| F1   | *1-532-286-00 | (F220A:AEP)...FUSE, TIME-LAG T2.5A |         |
| F1   | *1-532-237-00 | (F220A:UK)...FUSE, TIME-LAG T3.15A |         |
| F821 | *1-532-299-00 | (F120A)...FUSE, TIME-LAG T5A       |         |
| F821 | *1-532-325-00 | (F220A)...FUSE, TIME-LAG T6.3A     |         |
| F822 | *1-532-299-00 | (F120A)...FUSE, TIME-LAG T5A       |         |
| F822 | *1-532-325-00 | (F220A)...FUSE, TIME-LAG T6.3A     |         |
| T1   | *1-450-060-11 | (F220A)...TRANSFORMER, POWER       |         |
| T1   | *1-450-061-11 | (F120A)...TRANSFORMER, POWER       |         |

| Ref.No. | Part No.      | Description                      |
|---------|---------------|----------------------------------|
| 901     | *A-4334-206-A | (F120A)...MOUNTED PCB, AMPLIFIER |
|         | *A-4334-222-A | (F220A)...MOUNTED PCB, AMPLIFIER |
| 902     | *1-630-930-13 | PC BOARD, SP SW                  |
| 903     | *1-630-931-13 | PC BOARD, INPUT                  |
| 904     | *1-630-932-11 | PC BOARD, H.P                    |
| 905     | *1-630-933-11 | PC BOARD, CONECT (B)             |
| 906     | *1-630-934-12 | PC BOARD, CONECT (C)             |
| 908     | *1-630-936-12 | PC BOARD, SHIELD                 |
| 909     | *1-630-937-12 | (F220A)...PC BOARD, FUNCTION     |
|         | *1-630-941-13 | (F120A)...PC BOARD, FUNCTION     |
| 910     | *1-634-636-11 | PC BOARD, AC SWITCH              |
| 911     | *1-630-939-11 | (F220A)...PC BOARD, LED          |
|         | *1-630-943-11 | (F120A)...PC BOARD, LED          |
| 912     | *1-634-635-11 | PC BOARD, TRANSFORMER (B)        |
| 913     | *1-533-213-31 | HOLDER, FUSE                     |
| 914     | *1-535-115-00 | TERMINAL                         |
| 915     | *1-634-634-11 | PC BOARD, 4.8 SWITCH             |
| 916     | *1-634-637-11 | PC BOARD, TRANSFORMER (C)        |
| C1      | 1-161-744-00  | CERAMIC 10000P 400V              |
| C108    | 1-164-075-11  | CERAMIC 150PF 10% 50V            |
| C110    | 1-126-233-11  | ELECT 22MF 20% 50V               |
| C111    | 1-123-345-00  | (F220A)...ELECT 100MF 20% 35V    |
| C111    | 1-126-101-11  | (F120A)...ELECT 100MF 20% 16V    |
| C112    | 1-164-075-11  | CERAMIC 150PF 10% 50V            |
| C113    | 1-130-480-00  | MYLAR 0.0056MF 5% 50V            |
| C114    | 1-130-473-00  | (F120A)...MYLAR 0.0015MF 5% 50V  |
| C114    | 1-136-229-11  | (F220A)...FILM 0.0016MF 5% 100V  |
| C115    | 1-124-902-00  | ELECT 0.47MF 20% 50V             |
| C116    | 1-124-120-11  | ELECT 220MF 20% 25V              |
| C208    | 1-164-075-11  | CERAMIC 150PF 10% 50V            |
| C210    | 1-126-233-11  | ELECT 22MF 20% 50V               |
| C211    | 1-123-345-00  | (F220A)...ELECT 100MF 20% 35V    |
| C211    | 1-126-101-11  | (F120A)...ELECT 100MF 20% 16V    |
| C212    | 1-164-075-11  | CERAMIC 150PF 10% 50V            |
| C213    | 1-130-339-00  | (F220A)...FILM 0.0056MF 5% 100V  |
| C213    | 1-130-480-00  | (F120A)...MYLAR 0.0056MF 5% 50V  |
| C214    | 1-130-473-00  | (F120A)...MYLAR 0.0015MF 5% 50V  |
| C214    | 1-136-229-11  | (F220A)...FILM 0.0016MF 5% 100V  |
| C215    | 1-124-902-00  | ELECT 0.47MF 20% 50V             |
| C216    | 1-124-120-11  | ELECT 220MF 20% 25V              |
| C301    | 1-130-481-00  | MYLAR 0.0068MF 5% 50V            |
| C302    | 1-130-474-00  | MYLAR 0.0018MF 5% 50V            |

| Ref.No. | Part No.     | Description                            |
|---------|--------------|--|
| C303    | 1-136-159-00 | FILM 0.033MF 5% 50V                    |
| C304    | 1-130-479-00 | MYLAR 0.0047MF 5% 50V                  |
| C305    | 1-136-161-00 | (F220A)...FILM 0.047MF 5% 50V          |
| C306    | 1-164-086-11 | (F220A)...CERAMIC 0.0012MF 10% 50V     |
| C307    | 1-164-085-11 | CERAMIC 0.001MF 10% 50V                |
| C401    | 1-130-481-00 | MYLAR 0.0068MF 5% 50V                  |
| C402    | 1-130-474-00 | MYLAR 0.0018MF 5% 50V                  |
| C403    | 1-136-159-00 | FILM 0.033MF 5% 50V                    |
| C404    | 1-130-479-00 | MYLAR 0.0047MF 5% 50V                  |
| C405    | 1-136-161-00 | (F220A)...FILM 0.047MF 5% 50V          |
| C406    | 1-164-086-11 | (F220A)...CERAMIC 0.0012MF 10% 50V     |
| C407    | 1-164-085-11 | CERAMIC 0.001MF 10% 50V                |
| C501    | 1-126-233-11 | ELECT 22MF 20% 50V                     |
| C502    | 1-126-052-11 | ELECT 100MF 20% 35V                    |
| C503    | 1-164-023-11 | CERAMIC 15PF 5% 50V                    |
| C504    | 1-164-023-11 | CERAMIC 15PF 5% 50V                    |
| C505    | 1-124-477-11 | ELECT 47MF 20% 16V                     |
| C506    | 1-130-317-00 | (F220A)...FILM 0.068MF 5% 100V         |
| C506    | 1-136-163-00 | (F120A)...FILM 0.068MF 5% 50V          |
| C507    | 1-136-163-00 | FILM 0.068MF 5% 50V                    |
| C509    | 1-136-163-00 | FILM 0.068MF 5% 50V                    |
| C510    | 1-126-063-00 | (F220A)...FILM 100MF 20% 63V           |
| C511    | 1-126-063-00 | (F220A)...FILM 100MF 20% 63V           |
| C601    | 1-126-233-11 | ELECT 22MF 20% 50V                     |
| C602    | 1-126-052-11 | ELECT 100MF 20% 35V                    |
| C603    | 1-164-023-11 | CERAMIC 15PF 5% 50V                    |
| C604    | 1-164-023-11 | CERAMIC 15PF 5% 50V                    |
| C605    | 1-124-477-11 | ELECT 47MF 20% 16V                     |
| C606    | 1-130-317-00 | (F220A)...FILM 0.068MF 5% 100V         |
| C606    | 1-136-163-00 | (F120A)...FILM 0.068MF 5% 50V          |
| C607    | 1-136-163-00 | FILM 0.068MF 5% 50V                    |
| C609    | 1-136-163-00 | FILM 0.068MF 5% 50V                    |
| C610    | 1-126-063-00 | (F220A)...FILM 100MF 20% 63V           |
| C611    | 1-126-063-00 | (F220A)...FILM 100MF 20% 63V           |
| C701    | 1-123-875-11 | ELECT 10MF 20% 50V                     |
| C702    | 1-124-791-11 | ELECT 1MF 20% 50V                      |
| C703    | 1-126-176-11 | ELECT 220MF 20% 6.3V                   |
| C705    | 1-123-875-11 | ELECT 10MF 20% 50V                     |
| C706    | 1-124-443-00 | ELECT 100MF 20% 10V                    |
| C801    | 1-126-224-11 | (F120A)...ELECT 4700MF 20% 42V         |
| C801    | 1-125-596-11 | (F220A)...ELECT(BLOCK) 10000MF 20% 50V |
| C802    | 1-126-224-11 | (F120A)...ELECT 4700MF 20% 42V         |
| C802    | 1-125-596-11 | (F220A)...ELECT(BLOCK) 10000MF 20% 50V |
| C803    | 1-126-104-11 | ELECT 470MF 20% 35V                    |
| C804    | 1-126-104-11 | ELECT 470MF 20% 35V                    |
| C805    | 1-124-791-11 | ELECT 1MF 20% 50V                      |
| C806    | 1-126-103-11 | ELECT 470MF 20% 16V                    |
| C807    | 1-126-103-11 | ELECT 470MF 20% 16V                    |

| Ref.No. | Part No.       | Description                           |         |     |      |
|---------|----------------|---------------------------------------|---------|-----|------|
| C808    | 1-124-913-11   | (F120A)...ELECT                       | 470MF   | 20% | 50V  |
| C808    | 1-126-067-11   | (F220A)...ELECT                       | 1000MF  | 20% | 63V  |
| C809    | 1-124-913-11   | (F120A)...ELECT                       | 470MF   | 20% | 50V  |
| C809    | 1-126-067-11   | (F220A)...ELECT                       | 1000MF  | 20% | 63V  |
| C810    | 1-126-233-11   | (F120A)...ELECT                       | 22MF    | 20% | 50V  |
| C810    | 1-126-059-11   | (F220A)...ELECT                       | 10MF    | 20% | 63V  |
| C811    | 1-126-233-11   | (F120A)...ELECT                       | 22MF    | 20% | 50V  |
| C811    | 1-126-059-11   | (F220A)...ELECT                       | 10MF    | 20% | 63V  |
| C812    | 1-126-233-11   | (F120A)...ELECT                       | 22MF    | 20% | 50V  |
| C812    | 1-126-060-11   | (F220A)...ELECT                       | 22MF    | 20% | 63V  |
| C813    | 1-126-233-11   | (F120A)...ELECT                       | 22MF    | 20% | 50V  |
| C813    | 1-126-060-11   | (F220A)...ELECT                       | 22MF    | 20% | 63V  |
| C814    | 1-136-163-00   | (F120A)...FILM                        | 0.068MF | 5%  | 50V  |
| C815    | 1-130-798-00   | (F220A)...FILM                        | 1MF     | 10% | 250V |
| C816    | 1-136-165-00   | (F220A)...FILM                        | 0.1MF   | 5%  | 50V  |
| C818    | 1-136-163-00   | (F120A)...FILM                        | 0.068MF | 5%  | 50V  |
| C821    | 1-136-163-00   | FILM                                  | 0.068MF | 5%  | 50V  |
| C822    | 1-136-163-00   | FILM                                  | 0.068MF | 5%  | 50V  |
| C823    | 1-124-911-11   | ELECT                                 | 220MF   | 20% | 50V  |
| C828    | 1-124-911-11   | ELECT                                 | 220MF   | 20% | 50V  |
| C909    | 1-124-477-11   | ELECT                                 | 47MF    | 20% | 16V  |
| CN1     | *1-564-321-00  | PIN, CONNECTOR 2P                     |         |     |      |
| CNJ101  | 1-565-320-11   | (F120A, F220A: UK) ... JACK, PIN 6P   |         |     |      |
| CNJ101  | 1-565-320-61   | (F220A: AEP) ... JACK, PIN 6P         |         |     |      |
| CNJ102  | 1-565-320-11   | (F120A, F220A: UK) ... JACK, PIN 6P   |         |     |      |
| CNJ102  | 1-565-320-61   | (F220A: AEP) ... JACK, PIN 6P         |         |     |      |
| CNJ103  | 1-568-529-21   | (F220A)...JACK, PIN 4P                |         |     |      |
| CNJ301  | 1-565-961-11   | SOCKET, CONNECTOR 20P                 |         |     |      |
| CNJ302  | *1-565-835-11  | (F120A)...SOCKET, CONNECTOR 3P        |         |     |      |
| CNP301  | 1-565-419-11   | PIN, CONNECTOR 10P                    |         |     |      |
| CNP302  | 1-565-419-11   | (F120A)...PIN, CONNECTOR 10P          |         |     |      |
| CNP303  | 1-506-906-11   | (F220A)...PIN, CONNECTOR 5P           |         |     |      |
| CNP304  | 1-568-577-11   | (F120A)...PIN, CONNECTOR (PC BOARD)3P |         |     |      |
| CNP501  | *1-564-511-11  | PLUG, CONNECTOR 8P                    |         |     |      |
| CNP821  | *1-564-242-00  | PIN, CONNECTOR 5P                     |         |     |      |
| CP1     | △.1-574-804-11 | (UK)....CORD, POWER                   |         |     |      |
| CP1     | △.1-574-805-11 | (AEP)....CORD, POWER                  |         |     |      |
| D501    | 8-719-815-85   | DIODE 1S1585                          |         |     |      |
| D502    | 8-719-815-85   | DIODE 1S1585                          |         |     |      |
| D601    | 8-719-815-85   | DIODE 1S1585                          |         |     |      |
| D602    | 8-719-815-85   | DIODE 2S1585                          |         |     |      |
| D701    | 8-719-200-77   | DIODE 10E2N                           |         |     |      |
| D702    | 8-719-912-20   | DIODE 1SS120                          |         |     |      |
| D703    | 8-719-912-20   | DIODE 1SS120                          |         |     |      |
| D801    | 8-719-200-77   | DIODE 10E2N                           |         |     |      |
| D802    | 8-719-200-77   | DIODE 10E2N                           |         |     |      |
| D803    | 8-719-200-77   | DIODE 10E2N                           |         |     |      |
| D804    | 8-719-200-77   | DIODE 10E2N                           |         |     |      |
| D805    | 8-719-312-09   | DIODE RBA-402                         |         |     |      |
| D821    | 8-719-200-77   | DIODE 10E2N                           |         |     |      |
| D822    | 8-719-200-77   | DIODE 10E2N                           |         |     |      |
| D823    | 8-719-200-77   | DIODE 10E2N                           |         |     |      |
| D824    | 8-719-200-77   | DIODE 10E2N                           |         |     |      |
| U901    | 8-719-304-14   | DIODE SEL2510W (DIRECT)               |         |     |      |
| D902    | 8-719-304-14   | DIODE SEL2510W (DIRECT)               |         |     |      |
| D903    | 8-719-303-00   | DIODE SEL2510C (POWER)                |         |     |      |
| D904    | 8-719-303-00   | DIODE SEL2510C (POWER)                |         |     |      |
| D905    | 8-719-303-00   | DIODE SEL2510C (POWER)                |         |     |      |

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

| Ref.No. | Part No.       | Description                        |      |    |      |
|---------|----------------|------------------------------------|------|----|------|
| F1      | △.1-532-285-00 | (F120A)...FUSE, TIME-LAG T1.25A    |      |    |      |
| F1      | △.1-532-286-00 | (F220A:AEP)...FUSE, TIME-LAG T2.5A |      |    |      |
| F1      | △.1-532-237-00 | (F220A:UK)...FUSE, TIME-LAG T3.15A |      |    |      |
| F821    | △.1-532-299-00 | (F120A)...FUSE, TIME-LAG T5A       |      |    |      |
| F821    | △.1-532-325-00 | (F220A)...FUSE, TIME-LAG T6.3A     |      |    |      |
| F822    | △.1-532-299-00 | (F120A)...FUSE, TIME-LAG T5A       |      |    |      |
| F822    | △.1-532-325-00 | (F220A)...FUSE, TIME-LAG T6.3A     |      |    |      |
| IC101   | 8-759-601-02   | (F120A)...IC M5218P                |      |    |      |
| IC101   | 8-759-711-35   | (F220A)...IC NJM4580D              |      |    |      |
| IC501   | 8-759-109-06   | IC UPC1298V                        |      |    |      |
| IC601   | 8-759-109-06   | IC UPC1298V                        |      |    |      |
| IC701   | 8-759-111-68   | IC UPC1237HA                       |      |    |      |
| IC801   | 8-759-604-34   | IC M5F7815                         |      |    |      |
| IC802   | 8-759-604-52   | IC M5F7915                         |      |    |      |
| J901    | 1-507-863-51   | JACK, LARGE TYPE (HEADPHONES)      |      |    |      |
| L501    | *1-420-872-00  | COIL, AIR CORE                     |      |    |      |
| L601    | *1-420-872-00  | COIL, AIR CORE                     |      |    |      |
| Q501    | 8-729-119-78   | TRANSISTOR 2SC2785-HFE             |      |    |      |
| Q502    | 8-729-322-08   | (F120A)... TRANSISTOR 2SC3853LF-0Y |      |    |      |
| Q502    | 8-729-321-99   | (F220A)... TRANSISTOR 2SC3854LF-0Y |      |    |      |
| Q503    | 8-729-322-11   | (F120A)... TRANSISTOR 2SA1489LF-0Y |      |    |      |
| Q503    | 8-729-322-05   | (F220A)... TRANSISTOR 2SA1490LF-0Y |      |    |      |
| Q504    | 8-729-140-84   | TRANSISTOR 2SC1841-PAFAEA          |      |    |      |
| Q601    | 8-729-119-78   | TRANSISTOR 2SC2785-HFE             |      |    |      |
| Q602    | 8-729-322-08   | (F120A)... TRANSISTOR 2SC3853LF-0Y |      |    |      |
| Q602    | 8-729-321-99   | (F220A)... TRANSISTOR 2SC3854LF-0Y |      |    |      |
| Q603    | 8-729-322-11   | (F120A)... TRANSISTOR 2SA1489LF-0Y |      |    |      |
| Q603    | 8-729-322-05   | (F220A)... TRANSISTOR 2SA1490LF-0Y |      |    |      |
| Q604    | 8-729-140-84   | TRANSISTOR 2SC1841-PAFAEA          |      |    |      |
| Q701    | 8-729-900-63   | TRANSISTOR DTAL24ES                |      |    |      |
| Q704    | 8-729-620-05   | TRANSISTOR 2SC2603-EF              |      |    |      |
| Q801    | 8-729-920-98   | TRANSISTOR 2SD1761-EF              |      |    |      |
| Q802    | 8-729-920-97   | TRANSISTOR 2SB1187-EF              |      |    |      |
| R11     | 1-249-405-11   | CARBON                             | 100  | 5% | 1/4W |
| R12     | 1-249-405-11   | CARBON                             | 100  | 5% | 1/4W |
| R13     | 1-249-405-11   | CARBON                             | 100  | 5% | 1/4W |
| R101    | 1-247-713-11   | (F220A)...CARBON                   | 1K   | 5% | 1/4W |
| R103    | 1-247-713-11   | CARBON                             | 1K   | 5% | 1/4W |
| R108    | 1-247-714-11   | CARBON                             | 1.2K | 5% | 1/4W |
| R109    | 1-249-469-11   | CARBON                             | 100K | 5% | 1/4W |
| R111    | 1-249-469-11   | CARBON                             | 100K | 5% | 1/4W |
| R112    | 1-247-712-11   | CARBON                             | 820  | 5% | 1/4W |
| R113    | 1-246-539-00   | CARBON                             | 560K | 5% | 1/4W |
| R114    | 1-249-465-11   | CARBON                             | 47K  | 5% | 1/4W |
| R115    | 1-249-469-11   | CARBON                             | 100K | 5% | 1/4W |
| R116    | 1-247-704-11   | CARBON                             | 220  | 5% | 1/4W |
| R117    | 1-247-903-00   | (F220A)...CARBON                   | 1M   | 5% | 1/4W |
| R118    | 1-247-903-00   | CARBON                             | 1M   | 5% | 1/4W |
| R119    | 1-247-903-00   | CARBON                             | 1M   | 5% | 1/4W |
| R120    | 1-247-903-00   | CARBON                             | 1M   | 5% | 1/4W |
| R121    | 1-247-903-00   | CARBON                             | 1M   | 5% | 1/4W |
| R122    | 1-247-700-11   | CARBON                             | 100  | 5% | 1/4W |
| R201    | 1-247-713-11   | (F220A)...CARBON                   | 1K   | 5% | 1/4W |
| R203    | 1-247-713-11   | CARBON                             | 1K   | 5% | 1/4W |
| R208    | 1-247-714-11   | CARBON                             | 1.2K | 5% | 1/4W |
| R209    | 1-249-469-11   | CARBON                             | 100K | 5% | 1/4W |
| R211    | 1-249-469-11   | CARBON                             | 100K | 5% | 1/4W |
| R212    | 1-247-712-11   | CARBON                             | 820  | 5% | 1/4W |
| R213    | 1-246-539-00   | CARBON                             | 560K | 5% | 1/4W |
| R214    | 1-249-465-11   | CARBON                             | 47K  | 5% | 1/4W |
| R215    | 1-249-469-11   | CARBON                             | 100K | 5% | 1/4W |
| R216    | 1-247-704-11   | CARBON                             | 220  | 5% | 1/4W |
| R217    | 1-247-903-00   | (F220A)...CARBON                   | 1M   | 5% | 1/4W |

# TA-F120A/F220A

| Ref.No. | Part No.       | Description           |      |    |        |
|---------|----------------|-----------------------|------|----|--------|
| R218    | 1-247-903-00   | CARBON                | 1M   | 5% | 1/4W   |
| R219    | 1-247-903-00   | CARBON                | 1M   | 5% | 1/4W   |
| R220    | 1-247-903-00   | CARBON                | 1M   | 5% | 1/4W   |
| R221    | 1-247-903-00   | CARBON                | 1M   | 5% | 1/4W   |
| R222    | 1-247-700-11   | CARBON                | 100  | 5% | 1/4W   |
| R301    | 1-247-700-11   | CARBON                | 100  | 5% | 1/4W   |
| R302    | 1-246-545-00   | CARBON                | 1M   | 5% | 1/4W   |
| R303    | 1-247-717-11   | CARBON                | 2.2K | 5% | 1/4W   |
| R304    | 1-247-722-11   | CARBON                | 5.6K | 5% | 1/4W   |
| R305    | 1-246-545-00   | CARBON                | 1M   | 5% | 1/4W   |
| R307    | 1-247-152-00   | CARBON                | 7.5K | 5% | 1/4W   |
| R308    | 1-247-170-00   | CARBON                | 43K  | 5% | 1/4W   |
| R309    | 1-249-464-11   | CARBON                | 39K  | 5% | 1/4W   |
| R310    | 1-249-465-11   | CARBON                | 47K  | 5% | 1/4W   |
| R311    | 1-249-429-11   | (F220A)...CARBON      | 10K  | 5% | 1/4W   |
| R312    | 1-249-434-11   | (F220A)...CARBON      | 27K  | 5% | 1/4W   |
| R313    | 1-247-903-00   | (F220A)...CARBON      | 1M   | 5% | 1/4W   |
| R314    | 1-247-846-11   | (F220A)...CARBON      | 4.3K | 5% | 1/4W   |
| R401    | 1-247-700-11   | CARBON                | 100  | 5% | 1/4W   |
| R402    | 1-246-545-00   | CARBON                | 1M   | 5% | 1/4W   |
| R403    | 1-247-717-11   | CARBON                | 2.2K | 5% | 1/4W   |
| R404    | 1-247-722-11   | CARBON                | 5.6K | 5% | 1/4W   |
| R405    | 1-246-545-00   | CARBON                | 1M   | 5% | 1/4W   |
| R407    | 1-247-152-00   | CARBON                | 7.5K | 5% | 1/4W   |
| R408    | 1-247-170-00   | CARBON                | 43K  | 5% | 1/4W   |
| R409    | 1-249-464-11   | CARBON                | 39K  | 5% | 1/4W   |
| R410    | 1-249-465-11   | CARBON                | 47K  | 5% | 1/4W   |
| R411    | 1-249-429-11   | (F220A)...CARBON      | 10K  | 5% | 1/4W   |
| R412    | 1-249-434-11   | (F220A)...CARBON      | 27K  | 5% | 1/4W   |
| R413    | 1-247-903-00   | (F220A)...CARBON      | 1M   | 5% | 1/4W   |
| R414    | 1-247-846-11   | (F220A)...CARBON      | 4.3K | 5% | 1/4W   |
| R501    | 1-247-713-11   | CARBON                | 1K   | 5% | 1/4W   |
| R502    | 1-249-469-11   | CARBON                | 100K | 5% | 1/4W   |
| R503    | 1-247-712-11   | (F120A)...CARBON      | 820  | 5% | 1/4W   |
| R503    | 1-247-711-11   | (F220A)...CARBON      | 680  | 5% | 1/4W   |
| R504    | 1-249-496-11   | CARBON                | 100K | 5% | 1/2W   |
| R505    | 1-249-460-11   | CARBON                | 15K  | 5% | 1/4W   |
| R506    | 1-249-423-11   | CARBON                | 3.3K | 5% | 1/4W   |
| R507    | 1-249-419-11   | CARBON                | 1.5K | 5% | 1/4W   |
| R508    | △.1-247-688-11 | CARBON                | 10   | 5% | 1/4W F |
| R509    | △.1-216-361-00 | METAL OXIDE           | 0.22 | 5% | 2W F   |
| R510    | △.1-216-361-00 | (F220A)...METAL OXIDE | 0.22 | 5% | 2W     |
| R511    | △.1-247-688-11 | CARBON                | 10   | 5% | 1/4W F |
| R512    | △.1-247-704-11 | CARBON                | 220  | 5% | 1/4W F |

| Ref.No. | Part No.       | Description           |      |    |        |
|---------|----------------|-----------------------|------|----|--------|
| R513    | 1-247-723-11   | (F120A)...CARBON      | 6.8K | 5% | 1/4W   |
| R513    | 1-249-463-11   | (F220A)...CARBON      | 27K  | 5% | 1/4W   |
| R514    | 1-247-727-11   | CARBON                | 10   | 5% | 1/2W   |
| R515    | 1-249-465-11   | CARBON                | 47K  | 5% | 1/4W   |
| R516    | 1-247-727-11   | CARBON                | 10   | 5% | 1/2W   |
| R521    | △.1-216-361-00 | METAL OXIDE           | 0.22 | 5% | 2W F   |
| R522    | △.1-216-361-00 | (F220A)...METAL OXIDE | 0.22 | 5% | 2W     |
| R601    | 1-247-713-11   | CARBON                | 1K   | 5% | 1/4W   |
| R602    | 1-249-469-11   | CARBON                | 100K | 5% | 1/4W   |
| R603    | 1-247-712-11   | (F120A)...CARBON      | 820  | 5% | 1/4W   |
| R603    | 1-247-711-11   | (F220A)...CARBON      | 680  | 5% | 1/4W   |
| R604    | 1-249-496-11   | CARBON                | 100K | 5% | 1/2W   |
| R605    | 1-249-460-11   | CARBON                | 15K  | 5% | 1/4W   |
| R606    | 1-249-423-11   | CARBON                | 3.3K | 5% | 1/4W   |
| R607    | 1-249-419-11   | CARBON                | 1.5K | 5% | 1/4W   |
| R608    | △.1-247-688-11 | CARBON                | 10   | 5% | 1/4W F |
| R609    | △.1-216-361-00 | METAL OXIDE           | 0.22 | 5% | 2W F   |
| R610    | △.1-216-361-00 | (F220A)...METAL OXIDE | 0.22 | 5% | 2W     |
| R611    | △.1-247-688-11 | CARBON                | 10   | 5% | 1/4W F |
| R612    | △.1-247-704-11 | CARBON                | 220  | 5% | 1/4W F |
| R613    | 1-247-723-11   | (F120A)...CARBON      | 6.8K | 5% | 1/4W   |
| R613    | 1-249-463-11   | (F220A)...CARBON      | 27K  | 5% | 1/4W   |
| R614    | 1-247-727-11   | CARBON                | 10   | 5% | 1/2W   |
| R615    | 1-249-466-11   | CARBON                | 56K  | 5% | 1/4W   |
| R616    | 1-247-727-11   | CARBON                | 10   | 5% | 1/2W   |
| R621    | △.1-216-361-00 | METAL OXIDE           | 0.22 | 5% | 2W F   |
| R622    | △.1-216-361-00 | (F220A)...METAL OXIDE | 0.22 | 5% | 2W     |
| R701    | 1-247-723-11   | (F120A)...CARBON      | 6.8K | 5% | 1/4W   |
| R701    | 1-247-725-11   | (F220A)...CARBON      | 10K  | 5% | 1/4W   |
| R702    | 1-249-437-11   | CARBON                | 47K  | 5% | 1/4W   |
| R703    | 1-249-441-11   | CARBON                | 100K | 5% | 1/4W   |
| R704    | 1-249-439-11   | CARBON                | 68K  | 5% | 1/4W   |
| R705    | △.1-215-865-11 | (F120A)...METAL OXIDE | 220  | 5% | 1W F   |
| R705    | △.1-216-430-11 | (F220A)...METAL OXIDE | 390  | 5% | 1W     |
| R706    | 1-247-725-11   | (F120A)...CARBON      | 10K  | 5% | 1/4W   |
| R706    | 1-249-459-11   | (F220A)...CARBON      | 12K  | 5% | 1/4W   |
| R708    | 1-249-419-11   | CARBON                | 1.5K | 5% | 1/4W   |
| R801    | △.1-216-475-11 | (F120A)...METAL OXIDE | 120  | 5% | 3W F   |
| R801    | △.1-215-913-11 | (F220A)...METAL OXIDE | 220  | 5% | 3W     |
| R802    | △.1-215-915-11 | (F120A)...METAL OXIDE | 470  | 5% | 3W F   |
| R802    | △.1-216-481-11 | (F220A)...METAL OXIDE | 1.2K | 5% | 3W     |

Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

| Ref.No. | Part No.       | Description   |     |    |      |   |
|---------|----------------|---|-----|----|------|---|
| R803    | △.1-249-451-11 | CARBON  | 2.2 | 5% | 1/4W | F |
| R804    | △.1-249-451-11 | CARBON  | 2.2 | 5% | 1/4W | F |
| R805    | 1-247-713-11   | CARBON  | 1K  | 5% | 1/4W |   |
| R806    | 1-247-713-11   | CARBON  | 1K  | 5% | 1/4W |   |
| R807    | 1-249-455-11   | CARBON  | 4.7 | 5% | 1/4W |   |
| R808    | 1-249-455-11   | CARBON  | 4.7 | 5% | 1/4W |   |
| R901    | 1-247-706-11   | (F120A)...CARBON  | 330 | 5% | 1/4W |   |
| R901    | 1-247-744-11   | (F220A)...CARBON  | 270 | 5% | 1/2W |   |
| R902    | 1-247-706-11   | (F120A)...CARBON  | 330 | 5% | 1/4W |   |
| R902    | 1-247-744-11   | (F220A)...CARBON  | 270 | 5% | 1/2W |   |
| R907    | 1-249-412-11   | CARBON  | 390 | 5% | 1/4W |   |
| R908    | 1-249-413-11   | CARBON  | 470 | 5% | 1/4W |   |
| R909    | 1-249-413-11   | CARBON  | 470 | 5% | 1/4W |   |
| R911    | 1-247-706-11   | (F120A)...CARBON  | 330 | 5% | 1/4W |   |
| R911    | 1-247-744-11   | (F220A)...CARBON  | 270 | 5% | 1/2W |   |
| R912    | 1-247-706-11   | (F120A)...CARBON  | 330 | 5% | 1/4W |   |
| R912    | 1-247-744-11   | (F220A)...CARBON  | 270 | 5% | 1/2W |   |
| RV301   | 1-238-513-11   | RES, VAR, CARBON 150K/150K (BALANCE)                            |     |    |      |   |
| RV302   | 1-238-514-11   | RES, VAR 250K/250K (TONE:TREBLE)                                |     |    |      |   |
| RV303   | 1-238-515-11   | RES, VAR, CARBON 520K/520K (TONE:BASS)                          |     |    |      |   |
| RV304   | 1-238-512-11   | RES, VAR, CARBON 120K/120K (VOLUME)                             |     |    |      |   |
| RV501   | 1-237-455-11   | RES, ADJ, CARBON 500  |     |    |      |   |
| RV601   | 1-237-455-11   | RES, ADJ, CARBON 500  |     |    |      |   |
| RY701   | 1-515-533-11   | RELAY   |     |    |      |   |
| S1      | △.1-554-920-21 | SWITCH, PUSH (AC POWER)(1 KEY)(POWER)                           |     |    |      |   |
| S301    | 1-571-871-11   | (F220A)...SWITCH, ROTARY SLIDE<br>(INPUT SELECTOR)              |     |    |      |   |
| S302    | 1-571-873-11   | (F120A)... SWITCH, ROTARY SLIDE<br>(INPUT SELECTOR)             |     |    |      |   |
| S302    | 1-571-873-11   | (F220A)...SWITCH, ROTARY SLIDE<br>(REC OUT SELECTOR)            |     |    |      |   |
| S303    | 1-571-828-11   | SWITCH, PUSH (1 KEY)(SOURCE DIRECT)                             |     |    |      |   |
| S304    | 1-571-872-11   | SWITCH, PUSH (1 KEY)<br>(F120A:TAPE/DAT MONITER,F220A:LOUDNESS) |     |    |      |   |
| S821    | 1-571-309-31   | SWITCH (SPEAKER IMPEDANCE SELECTOR)                             |     |    |      |   |
| S901    | 1-571-870-11   | SWITCH, ROTARY SLIDDE (SPEAKERS)                                |     |    |      |   |
| T1      | △.1-450-060-11 | (F220A)...TRANSFORMER, POWER                                    |     |    |      |   |
| T1      | △.1-450-061-11 | (F120A)...TRANSFORMER, POWER                                    |     |    |      |   |
| TM901   | 1-537-227-11   | TERMINAL BOARD (SPEAKERS A/B)                                   |     |    |      |   |

## ACCESSORY &amp; PACKING MATERIAL

|               |  |
|---------------|--|
| 3-751-336-11  | MANUAL, INSTRUCTION<br>(ENGLISH,FRENCH,SPANISH,PORTUGUESE) |
| 3-751-336-41  | MANUAL, INSTRUCTION<br>(GERMAN,DUTCH,SWEDISH,ITALIAN)      |
| *4-929-260-01 | CUSHION  |
| *4-931-989-01 | (F220A)...INDIVIDUAL CARTON                                |
| *4-931-990-01 | (F120A)...INDIVIDUAL CARTON                                |

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.